WATER AS A RESOURCE

By W. J. McGee, LL. D.,
Secretary U. S. Inland Waterways Commission; Member National Conservation Commission, Washington, D. C.

Current Tendencies

This is an age of science and ours a nation of science. Observation has matured in measurement and passed from the qualitative to the quantitative, generalization is a habit, and prevision has become a commonplace in current life. More than all else, the course of nature has come to be investigated in order that it may be re-directed along lines contributing to human welfare; invention has become a step toward creation, and is extending far beyond the merely mechanical and into the realms of the chemical and even the vital. Now is the time of conquest over nature in practical sense, of panurgy in philosophic sense—the day of prophecy made perfect in predetermined accomplishment.

Our country is growing rapidly. The rate varies along different lines. Our growth in agricultural production is unprecedented in the world's history; our growth in population is so much more rapid that exportation of food-stuffs is declining; our growth in mining outruns our increase in population; our growth in manufacturing far exceeds that in mining, and our growth in application of mechanical power is much more rapid than our advance in manufacturing. Along one line only is our growth more rapid than in the use of power—*i. e.*, in that knowledge and mental capacity required to guide and develop the material progress.

Our rate of mental growth is not easily measured in that its manifestations are manifold. In 1905 it was pointed out that along the single line of university development the rate of advance is geometric—that during the first half of the nineteenth century our university strength measured in endowments, or faculties, or students, or alumni, or all combined doubled; that during the next quarter-century it doubled again; that from 1875 to 1890 it doubled again; that in the next decade it once more doubled, and that within

the first seven years of the present century it would inevitably double again. Naturally such whelming growth can not continue indefinitely on any line; yet the advance can and does continue, largely by the development of new lines or by multiplication of the old, so patently that it is safe to characterize our progress in knowledge and mental power as geometric.

Our growth in knowledge of that definite character called science is notable—particularly in its ever-multiplying applications. Twenty-five years ago the writer compiled a geologic map of the United States, the first based wholly on observation and not at all on inference, and although a quarter of the area was left blank, it was complete enough for publication;[1] a year later he compiled the first map showing the distribution of coal in the United States, which was fairly complete for two-thirds of our area yet so incomplete for the remaining third as not to be deemed worthy of publication. The facts that to-day any geologic map may be made substantially complete, and that our coal deposits have been surveyed not only as to area but as to volume, strikingly illustrate the rapidity and sureness of our progress in practical knowledge.

With the growth of science, its field has extended and its agencies have multiplied. When the Federal Geological Survey was started and the State surveys were reinvigorated only three decades ago, they stood almost alone for the development of the natural resources, aside from the land reckoned in area merely. Now the surveys have grown; an entire Federal Department and corresponding State instrumentalities have come up on the basis of resources comprising the land and its products and potentialities, a wide range of minerals, the forests which protect the streams, and of late the water itself. It is in harmony with the general development that the quantitative method is now applied not only to soil production in forests and crops, and to mine production and minerals in the ground, but finally to the rains and rivers which render the land habitable and the ground waters which render it fruitful.

No more significant advance has been made in our history than that of the last year or two in which our waters have come to be considered as a resource—one definitely limited in quantity, yet

[1]It appeared under the title "Map of the United States exhibiting the present *status* of knowledge of the geological groups." Fifth Annual Report of the U. S. Geological Survey, 1885 (pages 36-38, plate ii).

susceptible of conservation and of increased beneficence through wise utilization. The conquest of nature, which began with progressive control of the soil and its products and passed to the minerals, is now extending to the waters on, above and beneath the surface. The conquest will not be complete until these waters are brought under complete control.

Units of Measure

The quantitative view of water, except in smaller measures, is so new to thought that familiar units are lacking. Municipal water supply is generally expressed in gallons, irrigation water in acre-feet, stream flow in second-feet, or more accurately seconds-feet, and water for certain uses in the variable and indefinite miners'-inch. There is urgent need of a unit applicable to the quantities commonly used for water supply, irrigation and various other purposes. Moderate familiarity with the metric system would render convenient as such a unit the stere, equivalent to the kiloliter or cubit meter, the virtual basis of the metric system for volume or tridimensional measure, which roughly approximates—like the liter the quart—the cubic yard in quantity and the ton in weight of water, while the kilostere approximates 1000 tons and an acre-foot. The kilostere is especially convenient in discussing the water supply of the United States in that it permits expression of the leading values in round numbers not too large for ready comprehension—the mean rainfall totaling six billion (6,000,000,000) kilosteres, and its main derivative fractions being expressible in sixths of this total.[2]

Pending adoption of the metric unit, and as a glaring illustration of the need, it is necessary to employ either the cubic foot or the cubic mile in dealing quantitatively with our water supply—preferably the former for the supply of a country, the latter for the

[2]A few of the equivalents involved in the use of the stere follow:

1 liter equals 0.26 gal., 61.02 cu. in., 2.2 lbs.

1 stere equals 1000 liters, 1 kiloliter, 1 cubic meter, 264.17 gals., 35.31 cu. ft., 2204.62 lbs.

1 kilostere equals 1000 kiloliters, 264,170 gals., 35.314 cu. ft., 0.81 acre-foot, 1102.3 tons.

1 gal. equals 3.785 liters, 0.134 cu. ft., 231 cu. in., 8.313 lbs.

1 cu. ft. equals 28.32 liters, 0.028 kiloliters, 7.48 gals., 62.43 lbs.

1 cu. mi. equals 147.197.952.000 cu. ft., 4,168,207 kilosteres, 3,379,165 acre-feet 4,594,656,258 tons.

1 ton equals 907 liters, 0.907 kiloliter, 240 gals., 32 cu. ft. 2000 lbs.

I lb. equals 0.45 liter, 0.12 gal., 27.7 cu. in.

water of the world; and it is desirable to crystallize the quantitative concept by using the units interchangeably and coupling both with the metric system.

Our Stock of Water

The World Supply

The water of the world (or hydrosphere) is about 1/600 of the globe, or some 410,000,000 cubic miles. Nearly three-quarters occupies depressions in the earth-crust as seas; about a quarter, or some 100,000,000 cubic miles, permeates earth and rocks as ground water; the remaining small fraction is gathered in fresh-water lakes and channels, accumulated in snow and ice, or distributed in the atmosphere as aqueous vapor.

The mean annual precipitation is about 30,000 cubic miles ±4,400,000,000,000,000 cubic feet ±125,000,000,000 kilosteres ±100,000,000,000 acre-feet over the lands of the globe, and 90,000 cubic miles on the oceans—in all, 120,000 cubic miles ±17,600,000,000,000,000 cubic feet ±500,000,000,000 kilosteres ±400,000,000,000 acre-feet.

The vapor in the atmosphere tempers the climate; without it the globe would be uninhabitable. The average quantity is probably much less than the mean annual precipitation.

The sole source of the fresh waters of the world is the precipitation, mainly in rain, partly in snow, slightly in mist and fog; without it the lands would be barren, the earth a dead planet.

The most active part of the world's water is the small fraction forming streams; these, with some help from glacier ice, have sculptured nearly all of the land surface of the globe, collected materials for the geologic formations, and shaped the continents—running water being by far the most important earth-building agency.

The most effective portion of the water in the organic world is the minute fraction circulating through structures and maintaining the vital processes—for water is the primal constituent and primordial source of living things.

National Supply

The mean annual precipitation on the territory of mainland United States is about 30 inches; the quantity falling on the land

with the included water areas is about two hundred and fifteen trillion (215,000,000,000,000 cubic feet ±1500 cubic miles ±6,000,-000,000 kilosteres ±4,800,000,000, acre feet. It is equivalent to ten Mississippi rivers. From this source all our running, standing and ground waters are derived.

The yearly rainfall on the more humid two-fifths of the country east of the ninety-fifth meridian, or what may be called the state divide forming the eastern boundary of the five median states—North Dakota, South Dakota, Nebraska, Oklahoma and Texas, is nearly 48 inches; the quantity about 140,000,000,000,000 cubic feet ±1000 cubic mills ±4,000,000,000 kilosteres. On the semi-arid fifth of our area in these median states, or between the ninety-fifth and hundred and third meridians, the rainfall averages 30 inches and aggregates some 40,000,000,000,000 cubic feet. The rainfall on the western two-fifths of the country, including our arid lands, averages about 12 inches, or about 35,000,000,000,000 cubic feet ±250 cubic miles ±1,000,000,000 kilosteres.

Of the total rainfall, over half is evaporated; about a third flows into the sea; the remaining sixth is either consumed or absorbed. These divisions, which may be called respectively the fly-off, the run-off, and the cut-off are partly interchangeable. About a third of the run-off, or a tenth of the entire rainfall, passes through the Mississippi. The run-off is increasing with cultivation and deforestation; that of the Mississippi has increased from some 19,500,-000,000,000 cubic feet as measured by Humphreys and Abbott fifty years ago to over 22,000,000,000,000 cubic feet as recently gauged by Leighton. It is wholly within reach of human control.

The 110,000,000,000,000 cubic feet (3,000,000,000 kilosteres) of fly-off affects agriculture and other industries largely through climate. Except in moderate degree through scientific agriculture and forestry, it is beyond artificial control.

The 70,000,000,000,000 cubic feet (2,000,000,000 kilosteres) of run-off is available for water supply, irrigation, navigation and power. It is controlled in small part, and may be wholly controlled by proper means.

The remainder of the rainfall (the 35,000,000,000,000 cubic feet or 1,000,000,000 kilosteres of cut-off) is either consumed in plant growth and other chemical combinations, or else permeates the deeper strata and passes subterraneously into the sea. It is

partly controlled, chiefly through farming and forestry, and the control may be much increased.

Our Use and Waste of Water

The Fly-off

Of the hundred and ten trillion (110,000,000,000,000) cubic feet ±750 cubic miles ±3,000,000,000 kilosteres of water annually evaporated in mainland United States, incidental use is made through the settlement and industrial development depending on the presence of aqueous vapor in the atmosphere. Much of it is re-precipitated, generally after an easterly movement; perhaps half of the vapor content of the air, and the precipitation, *e. g.*, at St. Louis is derived from the Pacific primarily and from original precipitation and evaporation within the arid and semi-arid regions secondarily; the other moiety coming from the Gulf of Mexico. Neither the quantity nor the relations of the fly-off are known accurately; systematic observations and records of evaporation in different regions and under varying conditions have only recently been undertaken by the Weather Bureau. Evaporation is rapid from trees and many crop plants by reason of transporation. Probably it is less rapid from water surfaces and still less from grass lands or bare earth and rock, in which the water is held by molecular attraction and surface tension. Recent investigations in the Forest Service and the Hydrographic Branch of the Geological Survey render it clear that deforestation, *e. g.*, in the Ohio Valley, is followed by diminished precipitation, doubtless by reason of reduced sub-local evaporation, *i. e.*, that the aqueous vapor and circulation are interdependent with surface conditions and hence measurably subject to control. The fly-off is adapted to largely increased population and industries.

The Run-off

Of the seventy trillion (70,000,000,000,000) cubic feet ±500 cubic miles ±2,000,000,000 kilosteres annually flowing into the sea, little more than 100,000,000,000 cubic feet ±2,800,000 kilosteres, or one-seventh of one per cent., is taken from rivers and lakes and protected catchment areas for municipal and community supply and related purposes; less than two per cent., or some ten per cent. of that in the arid and semi-arid regions, is used for irrigation; per-

haps five per cent. may be reckoned as in small use for navigation; and less than five per cent. is utilized for power. It is estimated that eighty-five per cent. to ninety-five per cent. of the volume is wasted in freshets or destructive floods.

It is reckoned by M. O. Leighton, Chief of the Hydrographic Branch of the Geological Survey, that for municipal and community water supply there are protected catchment areas aggregating over 1,000,000 acres, and that fully $250,000,000 are invested in waterworks with nearly as much more in the appurtenant catchment areas and other lands. The population so supplied approaches 10,000,000; the annual consumption is about 37,500,000,000 cubic feet ±1,000,000 kilosteres, or one-twentieth of one per cent. of our run-off. The better managed systems protect the catchment areas by forests or grass; the water is completely controlled, the storm product is stored, and there is little waste save through over-lavish use after the impounded flow enters the mains.

For irrigation it is estimated by Director Newell, of the Reclamation Service, that there are $200,000,000 invested in dams, ditches, reservoirs and other works for the partial control of the waters, in addition to the value of the land which is virtually fixed by the availability of the water; and that 1,500,000,000,000 cubic feet ±42,000,000 kilosteres—*i. e.,* three-quarters of one per cent. of our total rainfall, or two per cent. of that on the western two-fifths of our area—are annually diverted to irrigable lands aggregating some 13,000,000 acres. Except in some cases through forestry, there is little effort to control the catchment areas, and few reservoirs are large enough to hold the storm waters; so that the waste in public and private projects exceeds sixty per cent., while less than twenty-eight per cent. of the water actually available for irrigation of the arid lands is restrained and diverted.

There are in mainland United States 287 streams navigated for an aggregate of 26,226 miles,[3] and about an equal additional mileage might be made navigable by waterway improvement; there are also forty-five canals with a mileage of 2189, besides numerous abandoned canals.[4] On lake and sound routes there is a large traffic, but the navigation of rivers and canals is too small for definite record. Several hundred million dollars have been expended on

[3]Preliminary Report of the Inland Waterways Commission, 1909. Herbert Knox Smith, on "Navigable Streams of the United States," page 35.

[4]*Ibid.* Herbert Knox Smith, on "Canals in the United States," page 190.

special projects, yet "in spite of large appropriations for their improvement, our rivers are less serviceable for interstate commerce to-day than they were half a century ago."[5] The cost of water carriage averaging about one-fourth that of rail carriage, and our railway freightage during 1906 reaching 217,000,000,000 ton-miles at an average rate of 0.77 cent, the shipping of one-fifth of our freight by water would have saved over $250,000,000 to our producers and consumers. Except through forestry in recent years, together with a few reservoirs and canal locks and movable dams, there has been little effort to control headwaters or catchment areas in the interests of navigation; and none of our rivers are navigated to more than a small fraction even of their effective low-water capacity.

The theoretical power of the streams is reckoned by Leighton at 230,000,000 horse power. The amount now used is computed by the Census Office at 5,230,000 horse power, and the amount running over Government dams and not used is estimated by the Chief of Engineers at about 1,400,000 horse power. The amount now available at a cost comparable with that of steam installation is estimated by the Hydrographic Branch of the Geological Survey at 37,000,000 horse power, and the amount prospectively available at 75,000,000 to 150,000,000 horse power. The 37,000,000 horse power to-day available exceeds our entire mechanical power now in use, and would operate every mill, drive every spindle, propel every train and boat, and light every city, town and village in the country. The nominal value is $20 per horse-power year; the price ranges up to $100 or $150. While the utilization of water power ranks among our most recent and most rapid industrial developments, little effort has been made to control catchment areas or storm waters in any large way for power development; though most plants effect local control through reservoirs and structures. Nearly all of the freshet and flood water runs to waste, and the low waters which limit the efficiency of power plants are increasing in frequency and duration with the increasing flood run-off.

The practical utility of streams for both navigation and power is measured by the effective low-water stage; the volume carried when the streams rise above this stage, seventy-five to ninety per

[5]Preliminary Report of the Inland Waterways Commission, 1909. "Message of the President," page vi.

cent. of the run-off, is not only wasted, but does serious damage. The direct yearly damage by floods since 1900, as computed by Leighton, has increased steadily from $45,000,000 to $238,000,000; the indirect loss through depreciation of property is probably greater; while the largest loss is that arising in impeded navigation and terminal transfers.

The freshets are attended by destructive soil erosion. The soil matter annually carried into lower rivers and harbors or into the sea has recently been reckoned by Dole and Stabler at 783,000,000 tons. Its removal seriously reduces the productivity of upland farms and increases channel-cutting and bar-building in the rivers. It is estimated that soil erosion reduces farm production ten to twenty per cent., that annual loss to farms alone is $500,000,000, and that large losses follow the fouling of the waters and the diminished navigability of the streams.

Through imperfect control of the running waters, lowlands are temporarily or permanently flooded. It is estimated that there are in mainland United States 75,000,000 to 80,000,000 acres of overflow and swamp lands requiring drainage; that by systematic operations these might be drained and the water made available at moderate expense; and that they would then be worth two or three times the present value and cost of drainage, and would furnish homes for 10,000,000 inhabitants.

A part of the run-off lodges temporarily in lakes and ponds. It is estimated that the quantity of fresh water so stored, including the American portion of the Great Lakes, is about 600,000,000,000,000 cubic feet ±45,000 cubic miles ±28,000,000,000 kilosteres, equivalent to three years' rainfall or nine years' run-off. The natural reservoirs yield a water supply ordinarily requiring no control of catchment area. Some 6,000,000 of our people draw their water supply from lakes. All the larger and deeper lakes are navigated; they serve the chief part of our inland commerce by water.

The Cut-off

Of the thirty-five trillion (35,000,000,000,000) cubic feet ±250 cubic miles ±1,000,000,000 kilosteres of cut-off, the chief share is absorbed by soil and earth or consumed by natural processes or through agriculture and related industries; yet most of it returns to the original supply by natural circulation.

On an average the plant tissue of annual growths is three-fourths and of perennial growths three-eighths water; of human and stock food over eighty per cent. is water, and in animal tissue the ratio is about the same; and is the chief vehicle for the transmission of enteric and many other diseases. Since water is the essential circulatory medium in organic bodies, the plants and animals of the country yearly require an amount many times exceeding their aggregate volume; the average man of 150 pounds ingests over a ton (900 liters, thirty-two cubic feet, or thirteen times his volume) of water each year, and an average bushel of corn requires over 700 cubic feet (twenty kiloliters or twenty-two tons) of water in the making—of which the larger part is evaporated. Even in the more humid sections of the country, the productivity of the soil and the possible human population would be much larger if the rainfall were greater, leaving a wider margin for organic and other chemical uses. Except through irrigation, little general effort is made to control the natural circulation, though some farmers in arid regions claim to double or triple the crop from given soil by supplying water just when needed and withholding it when not required.

The greater part of the cut-off lodges temporarily in the soil and earth as ground water. According to texture, fire-dry rocks contain one to three per cent., air-dry rocks five to twenty-five per cent., and saturated rocks and earths ten to forty per cent. of water, while the optimum moisture for plant growth in top-soil ranges from four to twenty per cent.; and it is estimated that the ground water to the depth of 100 feet in which it is available for hand pumps and capillarity and deep-rooted trees averages five per cent. over 1,000,000 square miles, twenty per cent. over another third of the country, and twenty-five per cent. over the remaining third—a mean of 16 2/3 per cent. This ground water may be conceived as a sub-surface reservoir 3,000,000 square miles in area and nearly seventeen feet deep, containing over 1,400,000,000,000,000 cubic feet ±100,000 cubic miles ±40,000,000,000 kilosteres, equivalent to seven years' rainfall or twenty years' run-off. It is the essential basis of agriculture and most other industries, and the chief natural resource of the country; it sustains forests and all other crops, and supplies the perennial streams and springs and wells used by four-fifths of our population and nearly all our domestic animals. Its quantity is diminished by the increased run-off due to deforestation

and injudicious farming. Throughout the upland portions of eastern United States the average water-table has been lowered ten to forty feet, so that fully three-fourths of the springs and shallower wells have failed and many brooks have run dry, while the risk of crop loss by drought has proportionately increased, and the waste through the Mississippi has increased over fifteen per cent. Although the available ground water is subject to control by such treatment of soil and plant growth as to prevent freshets, little effort has been made to retain it or increase its volume, and it is probable that fully ten per cent. of rich resource has been allowed to drain away since settlement began. The water of the deeper rocks below 100 feet supplies artesian and other deep wells, most thermal and mineral waters, and many large springs; it may be controlled in part through the sub-surface reservoir, and might be much better utilized.

In both ground and organisms the water, except when frozen, is in constant movement. In the soil it moves under gravity and capillarity, dissolves earth-salts and conveys them into and through the circulatory systems of living plants, and then carries the katastates of growth and decay into the air or back into the earth matter to hasten its solution. Some of the organic derivatives are excretory and poisonous to the plants yielding them or to others, but many of them set up destructive decompositions yielding elements of fertility, such as nitrogen and potassium and phosphorus compounds, serving to sustain later generations of plants; some of the earth-salts, such as calcium compounds, carried by the circulating waters promote the flocculation of particles and the friability of the soils on which plant growth depends; so that the primary law of the soil is one of cumulative enrichments through interaction of the floras and faunas by means of the aqueous circulation.

In plants the irregular circulation and in animals the regular circulation are maintained chiefly by transpiration and respiration, respectively, *i. e.*, by the passage of the water from liquid to vapor—and there is neither metabolism nor germination, nor any other essentially vital action, in the absence of water as the fundamental circulatory medium. The circulation extends from the organism into the air above and the soil below, with a degree of energy measured by evaporation, condensation, latency and affinity; and the locus of most effective energizing on the planet is the infinitely complex surface of the soil with its component particles and its extensions

in living organisms at which water is continually passing from one form to another in endless circulatory progression. This surface—the chief theater of organic activity—is subject to human control, partly through management of the soil, partly through selection and modification of the organisms, chiefly through regulation of the movements of the water derived from the rains and lodged in the sub-surface reservoir. Through control of this surface our entire water supply may be saved and applied to beneficial uses.

Our Most Urgent Needs

Our stock of water is like other resources in that its quantity is fixed. It differs from such mineral resources as coal and iron, which once used are gone forever, in that the supply is perpetual; and it differs from such resources as soils and forests, which are capable of renewal or increase, provided the supply of water suffices, in that its quantity can not be augmented. It differs also in that its relative quantity is too small to permit full development of other resources and of the population and industries depending on them. Like all other resources, it may be better utilized. It must be better utilized in order to derive full benefit from lands and forests and mines.

Although our rainfall of 215,000,000,000,000 cubic feet is 2,500,000 cubic feet per capita for a population of 86,000,000, or 250,000 cubic feet, allowing for the ninety per cent. waste, our growth in population and industries is seriously retarded by dearth and misuse of water. Fully a third of our territory, 1,000,000 square miles, the area of Great Britain, Germany, France, Spain, Portugal, Italy, Austria and Denmark combined, remains practically unoccupied and nearly unproductive by reason of aridity; while the public lands sufficiently humid for agricultural settlement are taken, the cost of transportation is limiting production, and our citizens are emigrating in thousands to other countries. With half our land area and the same water, our capacity for population and industries would be as great as now; with twice our water equally distributed over our present land, our capacity would be more than doubled.

Hitherto water has seldom been regarded as a resource to be exploited and conserved; it has been viewed vaguely as a prime necessity, yet merely as a natural incident or providential blessing. In its assumed plentitude the idea of quantity has seldom arisen

though the waste is least in those arid regions in which customs are better adjusted to the values and inter-relations of water. Under the English common-law prevailing in eastern United States, the water is held appurtenant to the land; under the Code Napoleon prevailing in Louisiana, it virtually appertains to the community; under the Spanish-Roman law prevailing in western United States, water is subject to prior appropriation and beneficial use, and hence appertains primarily to the individual or family, while the land is essentially appurtenant to the water traversing it. Some States recognize a residuary right of the people in the natural waters, or in the headwaters of streams used for water supply or navigation, and this recognition seems to be extending over the country; but the usage of the different sections is not uniform, the exercise of the right of the people generally varying with the aridity of the land or the density of the population.

In considering the benefits to be derived from the 215,000,000,000,000 cubic feet of water annually received, the paramount use should be that of water supply; next should follow navigation in humid regions and irrigation in arid regions. The utilization of power from the navigable and source streams should be kept subordinate to the primary and secondary uses of the waters; though other things equal, power development should be encouraged, not only to reduce the drain on other resources, but because properly designed reservoirs and power plants retard the run-off and so aid in the control of the streams for navigation and other uses.

It has been roughly estimated that the inland waterways of the country could be improved in ten years at a cost of $50,000,000 annually in such manner as to promote interstate commerce and at the same time greatly reduce the waste and extend the use of the waters. If done at the cost of the people, the burden would be $0.62½ per capita per year, or $6.25 in all, for a population of 80,000,000.

It is roughly estimated that the direct benefits would comprise an annual saving in transportation of $250,000,000; an annual saving in flood damage of $150,000,000; an average annual saving in forest fires of at least $25,000,000; an annual benefit through cheapened power of fully $75,000,000; and an annual saving in soil erosion or corresponding benefit through increased farm production of $500,000,000—a total of $1,000,000,000, or $12.50 per

capita annually, *i. e.,* twenty times the cost. In addition, large benefits would result from extended irrigation, from the drainage and settlement of swamp and overflow land, and from purified and cheapened water supply with consequent diminution of disease and saving of human life.

It is estimated that the income derived from power developed by works for the improvement of navigation, if utilized at current market rates in co-operation with states and citizens, would alone compensate the entire cost of maintenance and continued development after the initial expenditure of $500,000,000 as a working capital.